

REMARKS

1. Amendment of Claims:

Claim 4 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite on the grounds that the elastomers are not clearly recited and the term 60:30 ratio is unclear. In response, Claim 4 is amended so that the 60:30 ratio refers to two elastomers listed in Claim 2. Support for this amended language is found on page 6, lines 4-14.

Claims 1, 2, 5-14 and 16-23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hibi in view of Yamada, and further in view of Robbins. In his comments, the Examiner explained how Hibi and Robbins were combined to reach the inventions recited in Claim 1, 2, 5-14 and 16-23. It is unclear why Yamada was recited.

Claim 3 and 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hibi in view of Robbins et al., and further in view of Biermann.

Claim 15 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hibi in view of Robbins, and in further view of Wise.

In response to the rejection of Claims 16 and 20 based on 103(a), Claims 16 and 20 are hereby amended to more clearly recite that the phantom is made of thermoplastic material that is self-sealing when cooled. The Applicant transgresses the rejection of Claim 1 and requests reconsideration of Claims (1-23) on the grounds that when the references are combined in the manner suggested by the Examiner, all of the limitations recited in Claims 1, 15 and 16 are not met. Therefore, a prima facie case of obviousness has not been shown.

Claim 1 clearly recites an anthropomorphic phantom specifically designed to simulate an anatomical structure containing at least one blood vessel. This type of phantom is especially useful when teaching students ultrasonic techniques for accurately inserting needles, catheters or other

1 needles, catheters or other types of devices into the blood vessel. It is important that the blood vessel
2 be located inside the phantom. Because the phantom is reusable, it is also important that the
3 phantom be made of material of self-sealing material so that any simulated blood inside the blood
4 vessel does not leak out.

5 Hibi discloses a phantom that includes a phantom body mounted in a rectangular rubber base.
6 The phantom body is made of blocks that are placed inside void sections formed on the base. Each
7 block is made of made of jelly-like materials, such as agar, gelatin or the like (see Col. 3, lines 16-
8 18). There is no disclosure or suggestion that the blocks be made of thermoplastic material or that it
9 be self-sealing. Because it is not self-sealing, holes are formed on the phantom which limits its
10 useful life. (See Col. 4, lines 4-12 where the inventor acknowledges that when the phantom is
11 punctured several times, it is damaged and must be replaced).

13 Formed inside the blocks shown in Hibi are various anatomical structures. Fig. 1 shows a
14 stomach void formed inside the phantom body with a hollow esophagus extending therefrom. An
15 esophagus tube extends from the end of the base and is aligned with the esophagus so that an
16 endoscope may be inserted into the esophagus. Located in the base and below the phantom is a
17 spine tube and a blood vessel tube. The spine tube and blood vessel tube do not extend into the
18 phantom.

19 The Applicant concedes that Robbins teaches the use of 10% methocel (a highly water
20 soluble cellulose based product) used to suspend a matrix of spheres that simulate biopsy anatomical
21 structures. It is heated and mixed with an epoxy powder and nylon particles, and a surfactant. When
22 partially cooled, the mixture is then poured into a mold. When the phantom is cooled to room
23 temperature, the phantom must be covered with film to prevent the phantom from drying out. (See

1 prevent the phantom from drying out. (See Col. 3, lines 41-51).

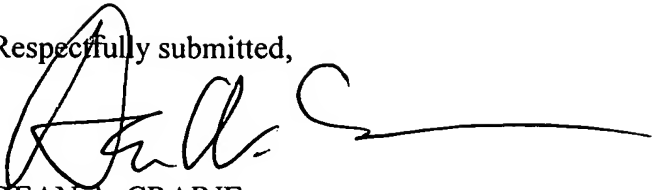
2 On page 2, lines 18-19, the applicant acknowledges that one of the drawbacks with phantoms
3 found in the prior art, such as one disclosed in Robbins, is that they dry out. To overcome this
4 problem, special thermoplastic material is used. Because the blood vessel is located inside the
5 phantom, the thermoplastic material must be self-sealing so that the liquid inside the blood vessel
6 does not leak out when punctured.

7 As stated above, it is unclear why Yamada is cited as a reference. It appears to disclose a
8 semi-spherical, head simulated phantom mounted on flat base 2. The phantom is made of a plurality
9 of stacked inner layers 31-34 and an outer skin layer 35. The inner layers are designed to simulate
10 different areas of the brain. Formed between the layers is space 4 meant to simulate a disease state
11 in the brain. Yamada discloses various steps on how the various inner layers are constructed. After
12 all the inner layers are constructed, the outer skin layer 35 is formed which is made silicone rubber
13 (see col. Lines 46-59).

14 The Applicant submits that all of the phantoms disclosed in Hibi and Robbins are made of
15 agar, gelatin, or methocel and water which have the drawback of drying out. The phantom disclosed
16 in Yamada is made of multiple inner layers made of hard resin, that when cured, is not intended to
17 be punctured. Further, it is covered by an outer layer of silicone rubber.

19 The Applicant submits that when combined, all of the limitations recited in Claims 1, 16 and
20 20 are not met. Therefore, the rejections based on 103(a) should be withdrawn and Notice of
21 Allowance should be granted.

1 Respectfully submitted,

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